

Hi-Tech Glass Filter Media

Anti-Compaction Technology®

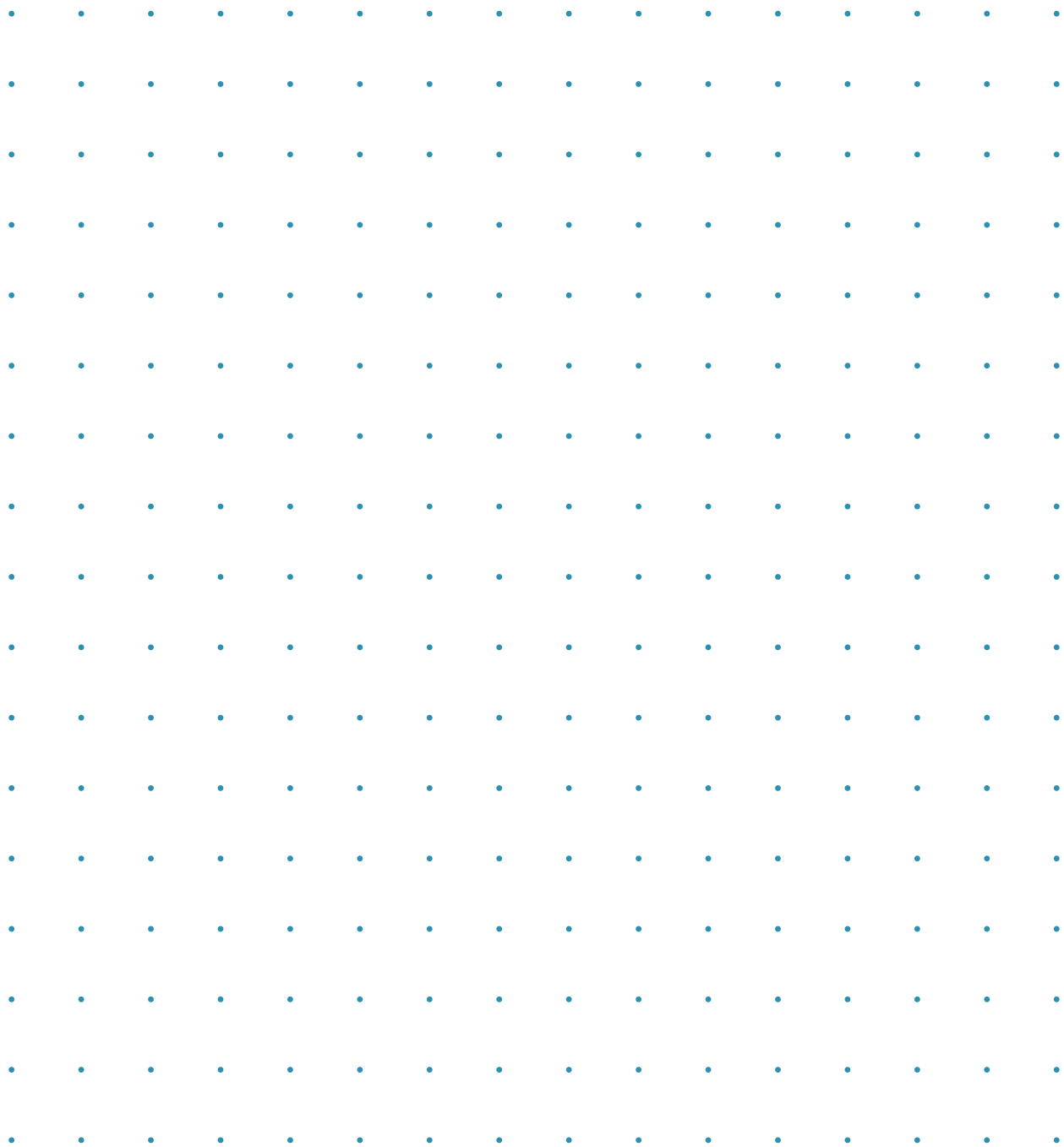


Nature Works

True evolution of FilterGLASS

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Present in over
20 countries and more
than **100.000 filtration
sites** all over the world



Nature Works® has been **at the service of efficiency and technology applied to water filtering for 10 years**, and can be found in home, public and industrial filtration sites around the world

Our commitment to quality is backed by certifications such as **Bureau Veritas**, which guarantees Nature Works® product features, production processes and traceability, as well as the absence of free silica and biofilm



Innovation as a Business Philosophy

We aim for constant improvement and innovation as our signature. That is why we have **an I+D+i laboratory with all the latest technology** to control the whole product and production process



We count on our own Hi-Technology equipment

Nature Works® is produced at Grupo Camacho plant located in Albacete, Spain. This plant is **one of the most advanced and Eco-Friendly for glass processing in Europe**

Thanks to this we obtain an extremely pure and controlled product, that makes Nature Works® one of the **leaders in the filtration market**





What is Nature Works®?

It is a **latest generation filter media** based on virgin recycled glass, designed exclusively for water filtration

Just by changing your current filter media for Nature Works® you will maximize every standard filter's performance

What advantages does it achieve?

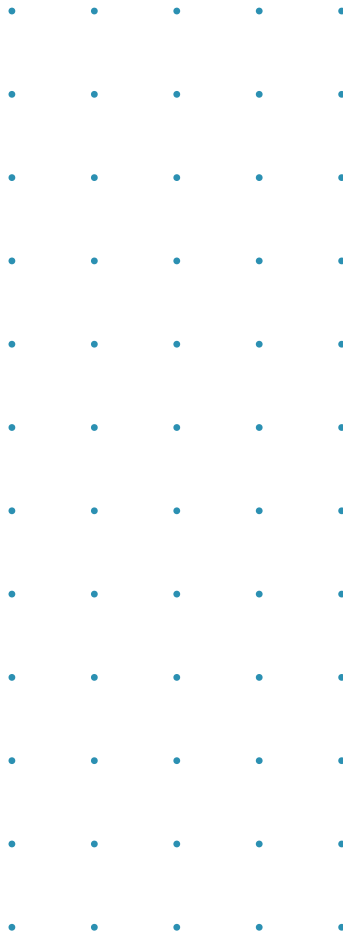
You will find noticeable advantages in:

-  Performance
-  Purity
-  Savings
-  Safety
-  Durability





Performance: Hygiene conditions



Accredited Absence of Biofilm

The aseptic properties and the Anti-Compaction Technology® of Nature Works® avoid the formation of biofilm. This important characteristic is accredited by accreditation laboratories

Biofilm is responsible for chloramines, clogging and channeling in the filter mass. With the use of Nature Works® you will find a difference straight away

Certified Absence of Free Silica

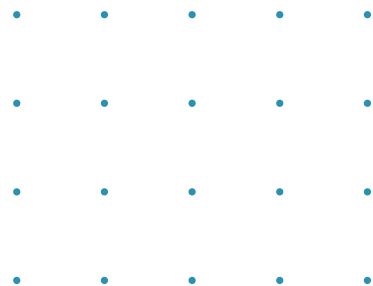
The crystal silica is a compound mineral that can be found in rocks and sand and may be found in filtration sand. A long term exposure to this compound could lead to various lung problems

Free silica is considered a cancerous substance by IARC (International Agency for Cancer Research)

Nature Works® avoids this hazard as it has no Free Silica in its composition. Certified by Bureau Veritas Certification number BV ES026775-A-CPI



Performance: Transparency



Filtering micron rate

The efficiency of Nature Works is based on the elimination of the most common particles you can find in a swimming pool that make the water go misty. This simultaneously maximizes savings and efficiency

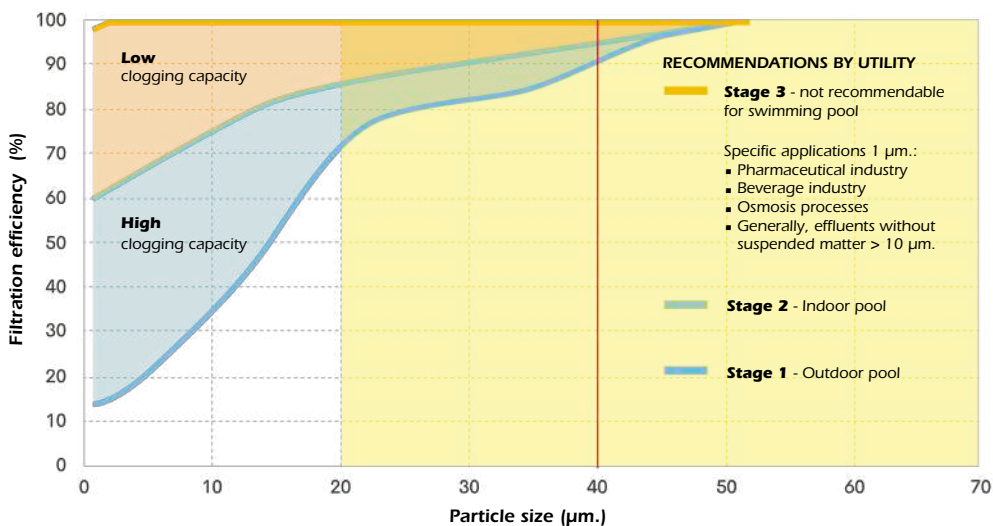
The utility of a filter media is determined by a compromise between micron rate and clogging capacity

Typical particles in an outdoor pool in order of expected population (Figure 2)

Type of particle	Size (µm.)
Thick dust	100 - 200
Fine dust	10 - 25
Human hair	70 - 100
Thick pollen	60 - 80
Fine pollen	15 - 30
Skin cell	10 - 30
Regular floc	60 - 80
Algae	10 - 200
Bacteria	0,5 - 2000

Performance Spectrum (Figure 1)

Results after six hours of filtration, according to the NF P 90319 standard



● Effective ranges for large volume of suspended matter (Stage 1 & Stage 2) such as swimming pool. Large quantities of empty spaces are available in the filter mass which allows days, weeks and even months between backwashing periods

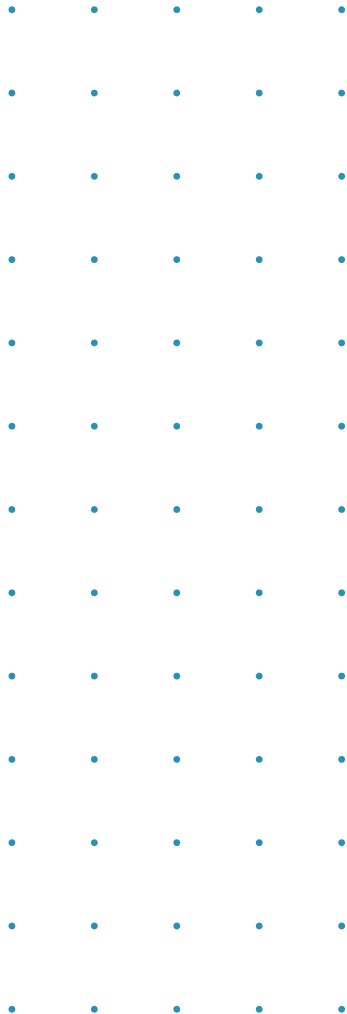
● Generally, it is a filter media (Stage 3) effective in applications without suspended matter > 10 µm. Due to its minimum clogging capacity, obligates to make continuous backwashing in presence of large volume of suspended matter > 10 µm.

● Particles mainly responsible for water mistiness - Except in specific applications -

| Limit of the naked eye



Saving and Efficiency



Energy savings

The Anti-compaction Technology® has been designed to keep the micro channels that form in the filtering mass open. When they are kept unblocked, the pressure in the filter stays at its minimum level and the clogging capacity stays at its maximum level, resulting in the following savings:

- ▼ Up to 60% of the pump consumption*
- ▼ Up to 10% of the heating consumption*



Water saving

At the same time as we save energy, due to keeping the micro channels open, we also manage to save water as we reduce backwashing. This means:

- ▼ Up to 35% in water consumption when backwashing*



Reduction of the use of Chemical products

Most of the chemicals used for the maintenance of the water are aimed at eliminating biofilm. The certified absence of this gives us:

- ▼ Up to 30% saving in the cost of chemical products*

* Results compared to silica sand



Durability

Anti-Compactación Technology®

Most of the filter medias available on the market come to the end of their useful life prematurely due to the effect of compaction (caking), a process where the segregation of fine and thick grains block the microchannels of the filtering mass

In order to avoid this result, Nature Works® has developed the Anti-Compaction Technology®, a precise selection of the calibre of the grain, designed to extend the useful life of the media indefinitely



A single layer to achieve maximum durability

Nature Works® only needs a single layer, with only one grain size, to offer a maximum performance, unlike other filter media that require multiple layers of different grains to be effective

This means Nature Works can be used time and time again. In the case of having to be taken out for any reason, such as damage to the filter or changing the water traps, you just take it out and reuse it in a safe and easy way



Safety

Safety, a basic quality

Safety is a basic quality when it comes to products used for water treatment for human use. For this reason at Nature Works we subject our glass to an advanced micro grinding to eliminate sharp and cutting edges

With this process we obtain a glass that is harmless and completely safe to handle





Purity

Purity certified for human use

The filter media is in constant contact with the water once it is installed, therefore it is fundamental that it is free of contaminants that could end up in the water

Nature Works® is subjected to an advanced process to free the glass of any possible macroscopic contamination. We achieve a clean glass filter media with a purity level of 99,999% or more, certified by Bureau Veritas Certification number BV ES026775-A-CPI



Warranty origin

Nature Works® is made from virgin glass, in other words, new glass that has never been transformed

This is the only way to guarantee the absence of bacteria or any other microscopic contaminants

Certifications, Accreditations and Tests

Nature Works® properties are backed by Bureau Veritas Certifications and by Biofilm Absence Accreditation

We guarantee the highest quality standards in all of our production batches by carrying out a thorough control of the whole production process



Certificate N° ES026775-CPI

- ✓ Product features
- ✓ Whole production process control
- ✓ Traceability
- ✓ Absence of Free Silica



Certificate N° ES026775-A-CPI

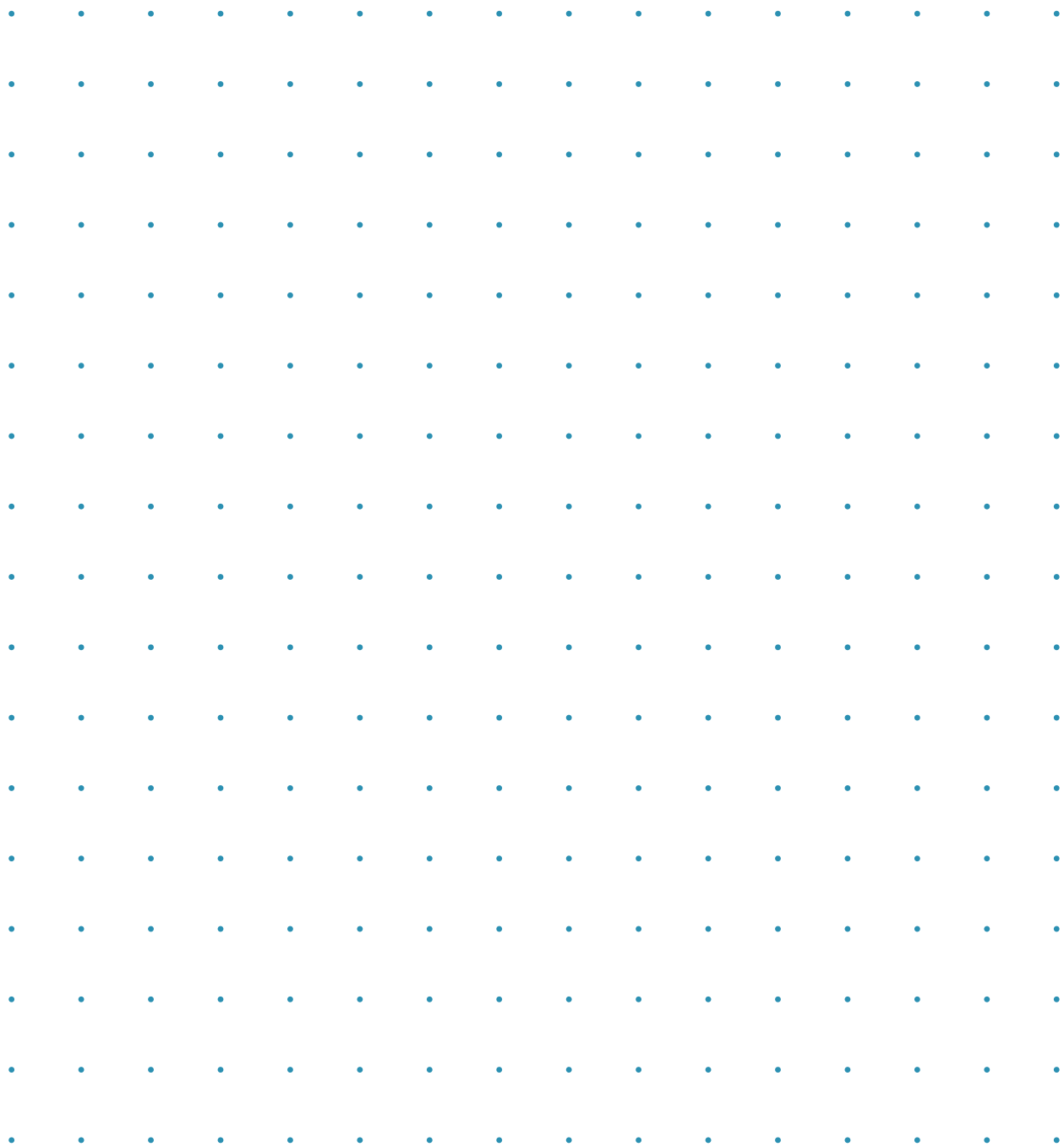
- ✓ Fresh Water Treatment authorization according to UNE EN 12.904 normative



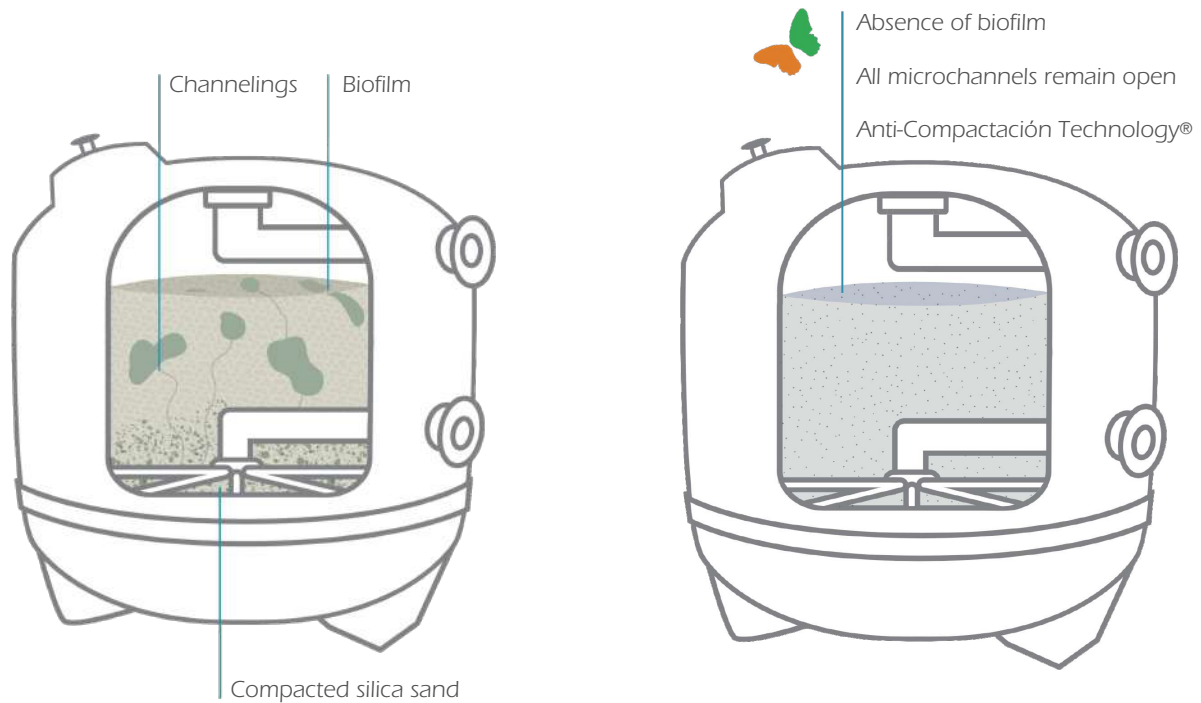
Accredited Absence of Biofilm



IFTS laboratories testings



Advantages of Nature Works® over silica sand



Disadvantages of silica sand

- ✘ Free silica presence
- ✘ It becomes bio-hazardous due to biofilm presence
- ✘ Extreme durability
- ✘ High chemicals, water and energy consumptions
- ✘ Preferential channeling presence that reduces filtration quality
- ✘ It becomes hazardous residue after its lifespan.

Advantages of Nature Works®

- ✔ Absence of Free Silica Bureau Veritas Certified
- ✔ Accredited Absence of Biofilm
- ✔ Extreme durability
- ✔ Minimum energy, chemicals and water consumptions
- ✔ High filtration quality
- ✔ Negligible loss of pressure

Nature Works® over other glass for filtration: origins



Origin of Nature Works®

Origin: virgin glass obtained from flat glass
Bacteria & Contaminant free

It is brand new glass, that has never been transformed nor in touch with urban waste



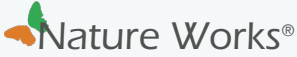





Origin of all other glass for filtration

Origin: Bottles, jars, pieces of glass from urban glass banks and urban waste

Expected contaminants: bacteria, ceramic, plastic, lab materials, metals, light bulbs, fluorescent tubes...

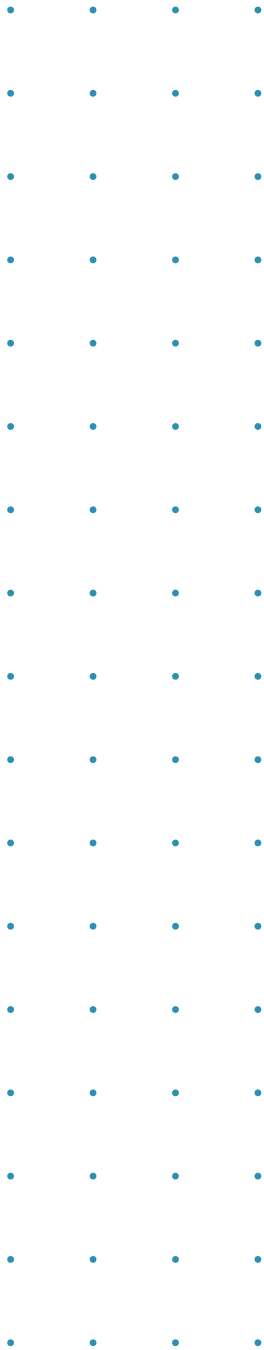


Comparative table Nature Works® over competitor glasses:

	 Specially developed for water treatment for human use	Other glasses used as filter media
 PURITY	Guaranteed Bacteria&Contaminant free Nature Works has a purity level of 99,999% or higher, certified by Bureau Veritas	Expected presence of bacteria and other contaminant Absence of purity degree certification of any kind
 SAFETY	Micro polished particle free of sharp edges and pores Completely safe to handle	Hazardous edges when it comes to handling, especially during installation and removal
 PERFORMANCE	Maximum transparency of the water Accredited absence of biofilm Reduction of the levels of chloramines and THMs Fresh Water Treatments certified	Different results * No accreditation of absence of biofilm Absence of certification for Fresh Water Treatments
 SAVINGS AND EFFICIENCY	Significant reduction in the consumption of: <ul style="list-style-type: none"> • Water • Energy • Chemical products 	Less savings in all fields
 DURABILITY	The Anti-Compaction Technology® allows an unlimited lifespan and being able to use a single layer makes it possible to be re-used indefinitely	Multiple layers needed, limiting its lifespan in the case of having to fix the filter Not reusable
 PACKAGING	Environmentally friendly recyclable packaging. Made from paper with FSC certificate	Plastic / Oxo-biodegradable plastic

* Its performance depend on the manufacturing batch, because of an uncontrolled grain curve. Our grain curve is perfectly controlled, even each fraction is strongly defined following the requirements of the Anti-Compaction Technology®

Our Bureau Veritas Certification of Product, Whole-Production-Process & Traceability, allow us to guarantee our products features



Frequent Asked Questions

How much Nature Works® glass will I need for my filter?

Nature Works® takes up more space than silica sand because of its particle density difference and its Anti-Compaction Technology, therefore **you will need 20% less than the amount recommended by the manufacturer** on the filter instructions

Why does Nature Works® offer a much better results than silica sand ? (see page 16)

Silica sand loses its filtration capacity in a short period of time due to the growth of biofilm (bacterial colonies) between its grains, which creates preferential channels and clogging

The absence of biofilm plus Anti-Compaction Technology® makes Nature Works® **one of the most efficient filter medias on the market**

Is Nature Works® compatible with all filters?

Yes, all standardized filters allow the use of Nature Works, If your filter does not have the worldwide harmonized nozzle opening size [0,35 +- 0,015 mm], we recommend you change the nozzles for standard ones

Why does Nature Works® only need one layer?

The combination of layers with different sized grains inside the filter is needed when the filter media has not Anti-Compaction Technology®, in order to delay clogging and be able to do a correct backwashing

Thanks to its High-Calibrated filter media grain curve, Nature Works® does not need different layers in any kind of filter. This also ensures an indefinite shelf life

Why is Nature Works® transparent ?

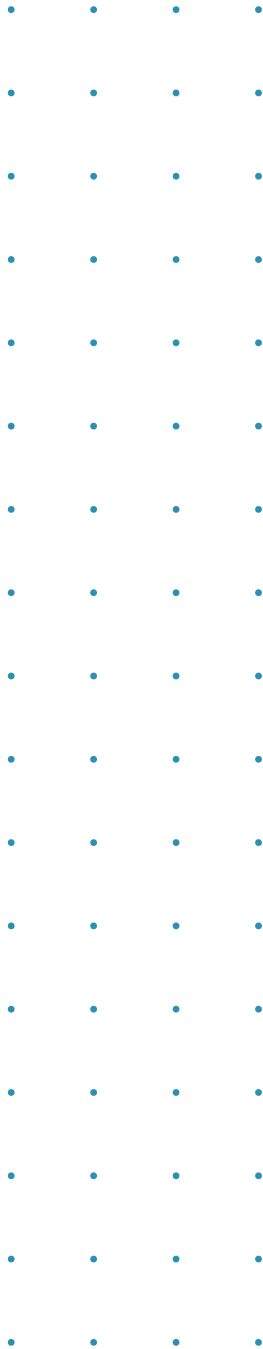
Nature Works® has been designed and produced specifically for use in water filters. To ensure maximum purity only virgin glass is used, it's the only glass with controlled origin and guaranteed not to have been in touch with bacteria or any other contaminating materials

Unlike other glass filter media, it does not come from urban glass banks and therefore is the only one suitable for water filtration for human consumption

Is colored glass just as efficient as the transparent one?

Glass obtains its colour when its being manufactured due to different chemicals, metals and oxides being added to achieve each colour. As it is encapsulated at a molecular level, this does not change any of the glass's properties, nor does it affect the filtering process

However, as the glass used for the coloured filter media comes from glass banks, not directly from the manufacturer, it may have all sorts of bacteria and contaminants that can end up in the water, which makes it risky to use in water filters for human consumption



In which sectors may Nature Works® be used ?

Thanks to its advantages and technical characteristics Nature Works is now used in over 100.000 installations all over the world

Used mainly in: :

- Private pool
- Commercial pool
- Advanced industrial installations such as purification plants, water parks, nuclear installations, desalination plants and aquaculture circuits among others

Is Nature Works® “activated” ?

By definition, filtration is a mechanical process where no other forces intervene, unwanted particles are retained in a filter due to the interaction of the water flow and the filter media

Due to its insulant nature, glass does not allow the free circulation of electrons, and therefore it is not possible to “charge” or “activate”. Some other manufacturers claim that their glass is “activated” yet this feature has not been backed up by any studies or demonstration

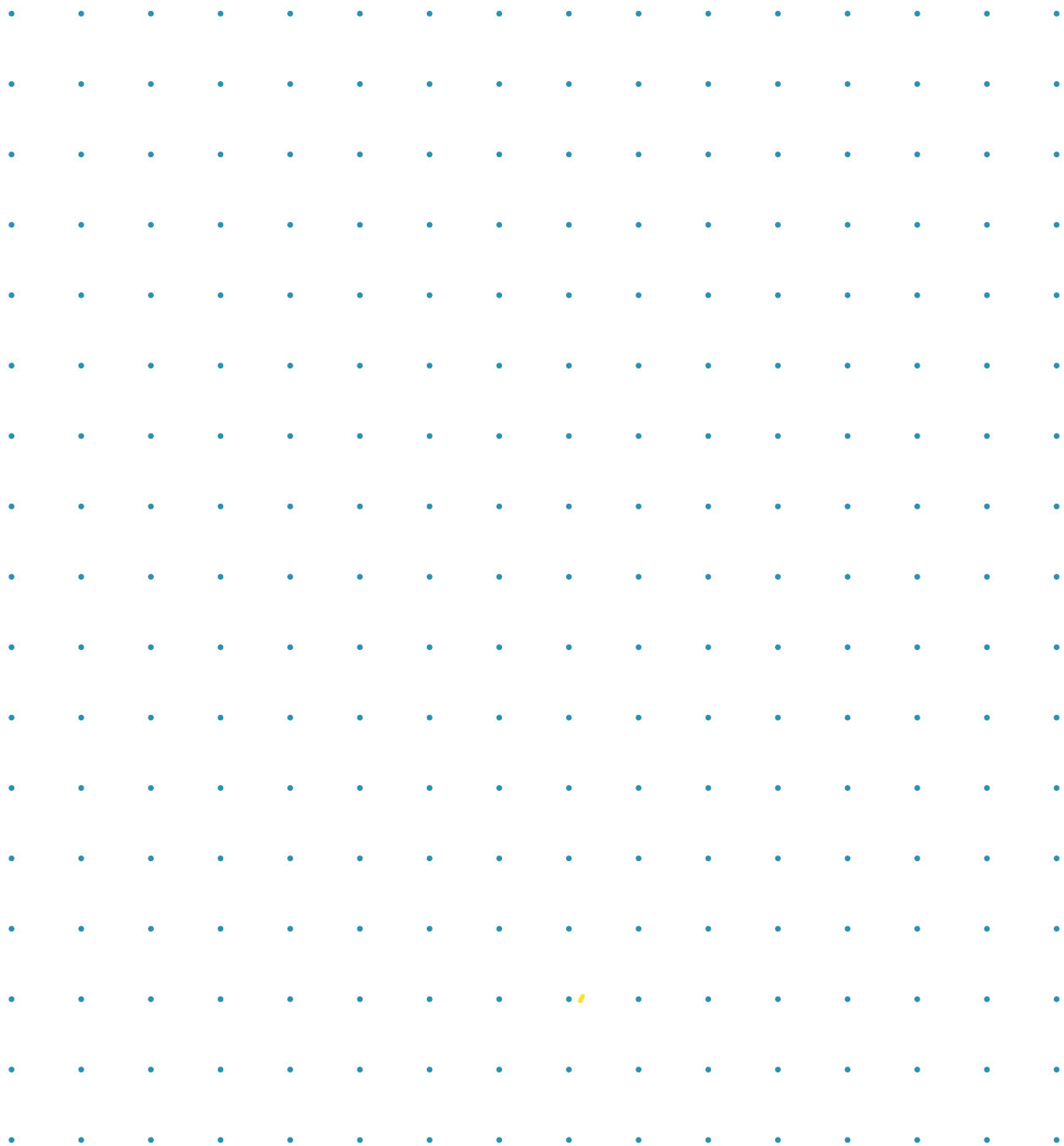
Is Nature Works® able to “filter certified 1 micron” ?

All our models are able to filter 1 micron with crescent effectiveness

The model with highest effectiveness, as describe in the page 8, is not recommended for swimming pool because due to its minimum clogging capacity, it obligates to make continue backwashing and it is thrown out to the sewage in the backwashing process

The recommended use for this model is, generally, applications without suspended matter > 10 µm.

A Certificate has to be issued by a Certification Company, wich does not issue filtration micron rate certificates. However, we count on the tests from the prestigious IFTS laboratories





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True evolution of FilterGLASS



Learn more:

www.natureworks.es

